

CLAIMS

1. A memory interface device to control a memory access with respect to: a memory write unit to comply with a memory write procedure in which every time data is written into a memory every predetermined amount unit, it is confirmed that readout of the data from the memory has been completed, and then the next write of the data into the memory is performed; and a memory readout unit which reads the data from the memory, the memory interface device comprising:

write detection means for detecting the write of the predetermined amount unit of the data from the memory write unit into the memory;

signal generation means for generating a signal to notify the memory write unit that the readout of the data from the memory has been completed, in a case where the write of the predetermined amount unit of the data is detected;

data storage amount measurement means for measuring an amount of the data stored in the memory; and

memory readout control means for generating an interrupt signal with respect to the memory readout unit, in a case where the stored data amount in the memory reaches a predetermined readout start storage amount.

2. A memory interface device connected to a memory write unit to comply with a memory write procedure in which every time data is written into a memory every predetermined amount unit, it is confirmed that readout of the data from the memory has been completed, and then the next write of the data into the memory is performed;; the memory interface device being configured to control a memory access to the memory write unit, the memory interface device comprising:

write detection means for detecting the write of the predetermined amount unit of the data from the memory write unit into the memory;

signal generation means for generating a signal to notify the memory write unit that the readout of the data from the memory has been completed, in a case where the write of the predetermined amount unit of the data is detected;

data storage amount measurement means for measuring an amount of the data stored in the memory;

data processing means for reading the data from the memory to subject the data to predetermined processing; and

memory readout control means for generating an interrupt signal with respect to the data processing means, in a case where the stored data amount in the memory reaches a predetermined readout start storage amount.

3. The memory interface device according to claim 1 and claim 2, wherein the memory readout control means temporarily stops the signal generation by the signal
5 generation means, in a case where the stored data amount in the memory reaches the predetermined readout start storage amount.

4. The memory interface device according to any one
10 of claims 1 to 3, further comprising:

a timer to count a period in which the write of the predetermined amount unit of the data is discontinued, when this counted value reaches a predetermined timer period, the timer being configured to output a timeout signal to
15 the memory readout control means,

the memory readout control means being configured to generate the interrupt signal with respect to the memory readout unit, even in a case where the timeout signal is received.

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5. A memory interface method to control a memory access with respect to: a memory write unit to comply with a memory write procedure in which every time data is written into a memory every predetermined amount unit, it
25 is confirmed that readout of the data from the memory has

been completed, and then the next write of the data into the memory is performed; and a memory readout unit which reads the data from the memory, the memory interface method comprising:

5 a step of detecting the write of the predetermined amount unit of the data from the memory write unit into the memory;

 a step of notifying the memory write unit that the readout of the data from the memory has been completed, in
10 a case where the write of the predetermined amount unit of the data is detected;

 a step of measuring an amount of the data stored in the memory; and

 a step of generating an interrupt signal with
15 respect to the memory readout unit, in a case where the stored data amount in the memory reaches a predetermined readout start storage amount.

6. The memory interface method according to claim 5,
20 further comprising:

 a step of temporarily stopping the readout completion notice, in a case where the stored data amount in the memory reaches the predetermined readout start storage amount.

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7. The memory interface method according to claim 5 or 6, further comprising:

a step of counting a period in which the write of the predetermined amount unit of the data is discontinued;

5 and

a step of generating the interrupt signal with respect to the memory readout unit, in a case where this counted value reaches a predetermined timer period.

10 8. A memory interface device to control a memory access with respect to: a first memory write and readout unit to comply with a memory write procedure in which every time data is written into a memory every predetermined amount unit, it is confirmed that readout of the data from
15 the memory has been completed, and then the next write of the data into the memory is performed; and a second memory write and readout unit which writes and reads the data with respect to the memory, the memory interface device comprising:

20 write detection means for detecting the write of the predetermined amount unit of the data from the first memory write and readout unit into the memory;

first completion signal generation means for generating a signal to notify the first memory write and
25 readout unit that the readout of the data from the memory

has been completed, in a case where the write of the predetermined amount unit of the data is detected;

first data storage amount measurement means for measuring an amount of the data stored in the memory;

5 first memory readout control means for generating an interrupt signal with respect to the second memory write and readout unit, in a case where the stored data amount in the memory reaches a predetermined readout start storage amount;

10 write amount detection means for detecting the write of the predetermined amount of the data from the second memory write and readout unit into the memory;

second completion signal generation means for generating a signal to notify the first memory write and
15 readout unit that the write of the data into the memory has been completed, in a case where the write of the predetermined amount of the data is detected;

second data storage amount measurement means for measurement the stored data amount in the memory; and

20 second memory readout control means for generating an interrupt signal with respect to the second memory write and readout unit, in a case where the stored data amount in the memory reaches a predetermined readout completion storage amount.

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9. The memory interface device according to claim 8,
wherein the first memory readout control means temporarily
stops the signal generation by the first completion signal
generation means, in a case where the stored data amount in
5 the memory reaches the predetermined readout start storage
amount.

10. The memory interface device according to any
one of claims 8 and 9, further comprising:

10 a first timer to count a period in which the write
of the predetermined amount unit of the data is
discontinued, when this counted value reaches a
predetermined timer period, the timer being configured to
output a timeout signal to the first memory readout control
15 means

the first memory readout control means being
configured to generate the interrupt signal with respect to
the second memory write and readout unit, even in a case
where the timeout signal is received.

20 11. The memory interface device according to any
one of claims 8 to 10, further comprising:

a second timer to count a period in which the write
of the data from the second memory write and readout unit
25 into the memory is discontinued, when this counted value

reaches a predetermined timer period, the second timer being configured to output a timeout signal to the second completion signal generation means,

the second completion signal generation means being
5 configured to generate a completion notice signal with respect to the first memory write and readout unit, in a case where the timeout signal is received.

12. A memory interface method to control a memory
10 access with respect to: a first memory write and readout unit to comply with a memory write procedure in which every time data is written into a memory every predetermined amount unit, it is confirmed that readout of the data from the memory has been completed, and then the next write of
15 the data into the memory is performed; and a second memory write and readout unit which writes and reads the data with respect to the memory, the memory interface method including:

a step of detecting the write of the predetermined
20 amount unit of the data from the memory write unit into the memory;

a step of notifying the first memory write and
readout unit that the readout of the data from the memory
has been completed, in a case where the write of the
25 predetermined amount unit of the data is detected;

a step of measuring an amount of the data stored in the memory;

a step of generating an interrupt signal with respect to the memory readout unit, in a case where the stored data amount in the memory reaches a predetermined
5 readout start storage amount;

a step of detecting the write of the predetermined amount of the data from the second memory write and readout unit into the memory;

10 a step of generating a signal to notify the first memory write and readout unit that the write of the data into the memory has been completed, in a case where the write of the predetermined amount of the data is detected;

a step of measuring the stored data amount in the
15 memory; and

a step of generating an interrupt signal with respect to the second memory write and readout unit, in a case where the stored data amount in the memory reaches a predetermined readout completion storage amount.

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13. The memory interface method according to claim 12, further comprising:

a step of temporarily stopping the readout completion notice, in a case where the stored data amount
25 in the memory reaches the predetermined readout start

storage amount.

14. The memory interface method according to claim 12 or 13, further comprising:

5 a step of counting a period in which the write of the predetermined amount unit of the data is discontinued; and

a step of generating the interrupt signal with respect to the second memory write and readout unit, in a
10 case where this counted value reaches a predetermined timer period.

15. The memory interface method according to any one of claims 12 to 14, further comprising:

15 a step of counting a period in which the write of the data from the second memory write and readout unit into the memory is discontinued;

a step of outputting a timeout signal, when this counted value reaches the predetermined timer period; and

20 a step of outputting a completion signal to the first memory write and readout unit in response to the timeout signal.

16. A modem device connected to a data processing
25 unit to comply with a memory write procedure in which every

time communication data or control command data is written into a memory every predetermined amount unit, it is confirmed that readout of the data from the memory has been completed, and then the next write of the data into the memory is performed,

the modem device comprising: a modem interface which exchanges the data with respect to the data processing unit; the memory; a memory readout unit which reads the data from the memory; and communication means connected to the memory readout unit to transmit and receive the communication data,

the modem device further comprising:

write detection means for detecting the write of the predetermined amount unit of the data from the memory write unit into the memory;

signal generation means for generating a signal to notify the data processing unit that the readout of the data from the memory has been completed, in a case where the write of the predetermined amount unit of the data is detected;

data storage amount measurement means for measuring an amount of the data stored in the memory; and

memory readout control means for generating an interrupt signal with respect to the memory readout unit, in a case where the stored data amount in the memory

reaches a predetermined readout start storage amount.

17. A modem device connected to a data processing unit to comply with a memory write procedure in which every time communication data or control command data is written into a memory every predetermined amount unit, it is confirmed that readout of the data from the memory has been completed, and then the next write of the data into the memory is performed,

the modem device comprising: a modem interface which exchanges the data with respect to the data processing unit; the memory; a memory write and readout unit which writes and reads the data with respect to the memory; and communication means connected to the memory write and readout unit to transmit and receive the communication data,

the modem device further comprising:

write detection means for detecting the write of the predetermined amount unit of the data from the memory write and readout unit into the memory;

first completion signal generation means for generating a signal to notify the data processing unit that the readout of the data from the memory has been completed, in a case where the write of the predetermined amount unit of the data is detected;

first data storage amount measurement means for

measuring an amount of the data stored in the memory; first
memory readout control means for generating an interrupt
signal with respect to the memory write and readout unit,
in a case where the stored data amount in the memory

5 reaches a predetermined readout start storage amount;

write amount detection means for detecting the write
of the predetermined amount of the data from the memory
write and readout unit into the memory;

second completion signal generation means for
10 generating a signal to notify the data processing unit that
the write of the data into the memory has been completed,
in a case where the write of the predetermined amount of
the data is detected;

second data storage amount measurement means for
15 measurement the stored data amount in the memory; and

second memory readout control means for generating
an interrupt signal with respect to second memory write and
readout unit, in a case where the stored data amount in the
memory reaches a predetermined readout completion storage
20 amount.